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RELATIONSHIP OF FETUIN-A TO LIPID ABNORMALITIES ASSOCIATED WITH METABOLIC SYNDROME IN TYPE 2 DIABETES MELLITUS (T2DM)

ACC Poster Contributions
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Background: Fetuin-A, an inhibitor of the insulin receptor phosphorilation, is associated with insulin resistance, metabolic syndrome (MetS) and early atherosclerosis. We hypothesized that plasma fetuin-A is independently associated with the presence of an atherogenic dyslipidemia and MetS in type-2 diabetes (T2DM).

Methods: A total of 608 subjects with T2DM (mean age 59.2 ± 9.3, 62.2% men) without advanced kidney disease, known cardiovascular disease or on insulin replacement therapy were included. MetS was defined based on the National Cholesterol Educational Program criteria. Insulin resistance was estimated using the homeostasis model assessment (HOMA-IR).

Results: Subjects in the higher fetuin-A tertile had an increased prevalence of MetS (78%) compared to 65 % in the lowest tertile. Fetuin A was inversely associated with HDL (B, -0.014, $p<0.05$), Lp(a) (B, -0.0352, $p<0.05$), and positively associated with triglycerides (B, 0.133, $p=0.001$), VLDL (B, 0 .0281, $p<0.01$), Apo A2 (B,0.007, $p<0.01$), Free Fatty Acids (B, 0.0002, $p<0.005$) and Apo C3 (B, 0.008, $p<0.01$). In a race, age and gender adjusted model a higher fetuin-A level increased the odds for MetS (OR 1.91, 95% CI 1.28-2.84), even after adjusting for HOMA-IR (OR 1.6, 95% CI 1.03-2.7). In a multivariate model accounting for potential confounding variables (age, gender, race, serum albumin, adiponectin , hsCRP, kidney function, and medication use) fetuin-A levels increased by 10.3 ng/l (95% CI 3.0-17.5) for each additional MetS criteria present. In further adjustment for HOMA-IR, fetuin-A remained positively associated only with triglycerides (B, 0.1134, $p<0.01$), VLDL (B, .024, $p<0.01$), Apo A2 (B, 0.007, $p<0.01$) and Apo C3 (B, 0.008, $p<0.01$). No association was noted with central adiposity, blood pressure, Apo B, Apo A1, hscrp, adiponectin or leptin

Conclusion: Among individuals with T2DM, fetuin-A is associated with the presence of MetS and atherogenic lipoproteins involved in the synthesis and catabolism of triglyceride rich particles independent of insulin resistance, inflammation or adipokines.